عنوان مقاله:

DIMENSIONALITY REDUCTION TO EEG CLASSIFICATION USING NEURAL NETWORK TO DETERMINE THE DEPTH OF ANESTHESIA

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خلاصه مقاله:

One of the major problems in the surgery is the creation of appropriate anestheticconditions in patients, anesthesiologist should preserve patients at an appropriate level ofanesthesia during surgical interventions and also prevent overdose or anesthetic doses toanesthetized patients. . Therefore, anesthesiologists make innovative decisions about thedepth of anesthesia and adjust the dose of anesthesia through all significant changes invital signs based on experiences. So today, overdose or dose deficiency andconsciousness during surgery can complicate anesthesia. The main problem is the poorrecognition of the complex levels of consciousness during anesthesia and the inability toassess the depth of anesthesia. . Ensuring adequate depth of anesthesia during surgery andin intensive care unit is necessary and necessary. In the case of neglecting the precisecontrol of the depth of anesthesia, there is a risk of unwanted alertness during surgery ora lack of consciousness. In recent years, special attention has been paid to the processingof the EEG signal in order to estimate the depth of anesthesia. Therefore, separation ofconsciousness and anesthesia is one of the main and most important courses insurgery. Therefore, the purpose of the study is to use the characteristics ofentropy, spectral and nonlinear to determine the depth of anesthesia. In this case,non-linear dimensional reduction methods will be used to improve the results.Then multi layer perceptron (MLP) neural network was used to classify the depthof anesthesia. The results of the classification of anesthesia depth with MLPclassification with four dimensionality reduction method showed that theaccuracy, and sensitivity and the specificity to detect depth of anesthesia withLLE were 79.46%, 80.06% and 79.4%, respectively.

کلمات کلیدی:

depth of anesthesia, EEG signal, Feature extraction, classification, dimension reduction method

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